WHAT IS CLAIMED IS:

1. A method of manufacturing a microelectronic device, comprising:

forming a patterned feature over a substrate;

depositing a conformal polymer layer over the patterned feature and the substrate, employing a fluorine-containing plasma source; and

etching the polymer layer to expose the patterned feature and a portion of the substrate, thereby forming polymer spacers on opposing sides of the patterned feature.

2. The method of claim 1 wherein the conformal polymer layer is deposited in a chemical reactive plasma environment.

3. The method of claim 1 wherein the substrate comprises diamond.

4. The method of claim 1 wherein the substrate comprises strained silicon.

5. The method of claim 1 wherein the patterned feature is a semiconductor device gate structure.

6. The method of claim 1 wherein the fluorine-containing chemistry comprises CF_4.

7. The method of claim 1 wherein the fluorine-containing chemistry comprises CF_3.

8. The method of claim 1 wherein the fluorine-containing chemistry comprises C_2F_2.

9. The method of claim 1 wherein the fluorine-containing chemistry comprises CH_2F_2.

10. The method of claim 1 wherein the fluorine-containing chemistry comprises CHF_3.

11. The method of claim 1 wherein the fluorine-containing chemistry comprises C_2F_6.

12. The method of claim 1 wherein the fluorine-containing chemistry comprises C_3F_8.

13. The method of claim 1 wherein the fluorine-containing chemistry comprises SF_6.

14. The method of claim 1 wherein the fluorine-containing chemistry comprises C_3F.

15. The method of claim 1 wherein the fluorine-containing chemistry comprises CH_3F.

16. The method of claim 1 wherein the fluorine-containing chemistry comprises a fluorocarbon.

17. The method of claim 1 wherein a flow rate of the fluorine-containing chemistry ranges between about 5 sccm and about 200 sccm.

18. The method of claim 1 wherein the fluorine-containing chemistry further includes a chlorine-containing gas.

19. The method of claim 18 wherein the chlorine-containing gas comprises Cl_2 and chlorocarbons.

20. The method of claim 1 wherein the fluorine-containing chemistry further includes a bromine-containing gas.

21. The method of claim 20 wherein the bromine-containing gas comprises HBr.

22. The method of claim 1 wherein the etching employs an oxygen-containing gas.

23. The method of claim 22 wherein the oxygen-containing gas comprises O_2.

24. The method of claim 22 wherein the oxygen-containing gas comprises O_3.

25. The method of claim 22 wherein the oxygen-containing gas comprises NO_2.

26. The method of claim 22 wherein the oxygen-containing gas comprises CO_2.

27. The method of claim 22 wherein the oxygen-containing gas comprises CO.

28. The method of claim 1 wherein depositing the polymer layer employs a direct current (DC) bias applied to the substrate ranging between about 1 Watts and about 50 Watts.

29. The method of claim 1 wherein depositing the polymer layer employs a radio frequency (RF) bias applied to the substrate ranging between about 1 Watts and about 50 Watts.

30. The method of claim 1 wherein the etching the spacer employs a direct current (DC) bias applied to the substrate ranging between about 1 Watts and about 500 Watts.

31. The method of claim 1 wherein the etching the spacer employs a radio frequency (RF) bias applied to the substrate ranging between about 1 Watts and about 500 Watts.

32. The method of claim 1 further comprising:

forming source/drain regions in the substrate on opposing sides of the patterned feature; and

removing the spacers after forming the source/drain regions.

33. The method of claim 32 wherein removing the spacers includes etching the spacers with an oxygen-containing gas.

34. A microelectronic device, comprising:

a substrate;

a patterned feature located over the substrate;

polymer spacers containing fluorine and located on opposing sides of the patterned feature.

35. The microelectronic device of claim 34 herein the polymer spacers have a thickness ranging between about 5 Angstroms and about 1000 Angstroms.

36. A integrated circuit device, comprising:

a substrate;

a plurality of microelectronic devices each comprising:

a patterned feature located over the substrate; and

polymer spacers containing fluorine and located on opposing sides of the patterned feature; and

at least one interconnect electrically connecting ones of the plurality of microelectronic devices.